Transcript of Ana Diez Roux Spotlight Video

I'm Ana Diez Roux.

I'm an epidemiologist at the University of Michigan.

My area of research is the social determinants of health.

I started out as a physician and I was always intrigued by the connections between the social world that my patients lived in and what their experience of health was.

The research that I do now is really a way to kind of take that to another level and much more depth and much more specificity of understanding of biological and social mechanisms.

We look at a very broad range of environmental factors, but "environment" in a very broad sense, of not just the physical environment, which we have traditionally looked at in health for a long time, like air pollution, but also things about the ways in which communities are built, the ways in which people interact with each other, things about the social environment.

And all these things eventually trickle down through multiple different pathways and affect people and, ultimately, affect their health.

One project that we have focuses on how neighborhoods and local communities affect cardiovascular risk.

We know that cardiovascular disease is strongly patterned by socioeconomic factors.

People of lower education, for example, have substantially higher cardiovascular disease risk.

So understanding why that is helps us understand the causes of cardiovascular disease in everybody and tries to look at the environments in which people live and how those environments affect the development and maintenance of various factors that we know are ultimately related to cardiovascular disease.

You know, if you remember, we're using supermarkets because this idea, shown in other research, that they're, at least within the U.S. context, they're a reasonable proxy for healthy food access.

The physical environment includes things like whether there's access to different kinds of resources: healthy foods, recreational facilities, parks; levels of safety and violence and crime; to what extent people feel connected to others in their neighborhood.

We track that over time in people as they move, over the course of the study, and we try to understand how those factors relate to different kinds of risk factors that we know ultimately lead to atherosclerosis and cardiovascular disease.

I'll ask you to refrain from speaking.

DIEZ ROUX: We have another study that tries to delve a little bit deeper into the stress and cardiovascular disease story.

Many people will probably say "Yes, stress causes heart attacks," right?

It's a kind of a common knowledge about stress.

However, there's still a lot of debate, I think, about how important stress really is and so one of the things that we try to do in another study that we have is develop more sophisticated measures of the biological consequences of stress.

-May I have a stress rating, please?
3.

DIEZ ROUX: And so we measure stress hormones, a variety of stress hormones, on study participants over time.

For example, we measure cortisol, which is a hormone that's involved in the stress process, stress physiology.

-In the second task, the computer's going to present you with color names.

-The participants in our study perform what we call a "stress challenge."

Red.

Green.

Red. Red.

-So they come in to the clinic.

We connect them up in order to monitor their blood pressure response, through a device that goes on their finger.

We get an electrocardiogram.

We monitor their respiration rate, their heart rate.

And, once they're connected, they essentially play some sort of computer games and these games are designed to be a little stressful.

And then we examine how that is affected by some of the social factors and also to then understand how the stress responsivity may be related to a variety of other outcomes down the line.

And that's a factor.
I agree, yeah.

The orange color, this is multifamily residential.

DIEZ ROUX: Another area that we've begun to explore is complex systems approaches to population health.

So with the systems modeling approach, we can better understand what would happen if we intervened on this system and, by putting these factors together and considering their interrelationships, we can, hopefully, better understand what the possible impact of an intervention could be.

We have people sorting into neighborhoods and then we have the income of the neighborhood affecting the quality, quality affecting health, and then health affecting income and so that creates this kind of feedback that we're interested in seeing.

Red houses means unhealthy households and blue means a healthy household.

As one example, we're developing a model of walking behavior in cities, which builds on the work that we're doing in the neighborhood study and so we simulate a very simple -- initially, a very simple city with people who have to do things.

They have to go to work; they have to shop; they have to socialize.

And here you have rich people and rich environments.

And they make decisions about how they're going to travel to these places and they have environments that they walk through, for example.

That affects what they do next time.

And how much people walk also affects what happens in the neighborhood.

In some ways, I think the work that we do seeks to provide, you know, rigorous scientific evidence for the importance of these things, with the hopes that they will be translated into policy so that people don't have the misperception that health is only about genetic differences or behavioral differences, important as those things are.

That, oh, there's this other world, other realm, which affects health, which is really important, which we can do something about.